



BBC INSTALLATION & REMOVAL PROCEDURE

procedure name

PHENIX Procedure No. PP-2.5.5.4-05

Revision: E

Date: 7/19/2016

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approvals

 7/21/16
PHENIX S E & I Date

 7/21/16
Cognizant Scientist/Engineer Date
/Activity Manager

 7/21/16
PHENIX QA/Safety Date

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REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First Issue	4/16/1999	n/a	H, Ohnishi, W. Lenz, M. Gaffney, (1 unintelligible)	n/a
B	Multiple changes: 1. added "& REMOVAL" to title 2. Removed procedure title from page 4 (just prior to section 1.0) 3. Section 5.0 partitioned into 5.1 and 5.2 for installation and removal procedures, respectively.	(not released)	D. Lynch	N/A	D. Lynch
C	Review of Rev B. completed minor grammar/spelling corrections. Added figure 3	12/18/2009	D. Lynch	P. Giannotti, D. Lynch, R. Pisani	D. Lynch
D	Reviewed and found to be OK as is	1/25/2013	D. Lynch	P.Giannotti, D. Lynch, R. Pisani	D. Lynch
E	Reviewed and found to be OK as is, except implemented HPC's from previous version (corrected typo's in this document and web page)	7/19/2016	D. Lynch	P.Giannotti, D. Lynch, R. Pisani	D. Lynch

1.0 Purpose and Scope

This document shall describe the method of safely installing and removing the BEAM/BEAM COUNTER (weighing 15 lb. per half) onto the PHENIX Flowerpot slides and around the beampipe. Access for either procedure can only be done during annual shutdown, since this requires movement of the south muon (MMS) and central (CM)magnets.

2.0 Responsibility

Only trained and authorized persons shall perform the tasks described herein under the supervision of the building 1008 PIC and the PHENIX-BBC representative.

3.0 Prerequisites

- 3.1** All persons performing tasks described herein shall possess current BNL training for the specific equipment to be used for this procedure (e.g. cranes, manlifts)
- 3.2** All persons performing tasks described herein shall wear proper personal protective equipment per BNL SBMS standards.
- 3.3** All materials handling equipment used shall have been maintained and inspected per BNL SBMS Standards.

4.0 Required Equipment

- 4.1** A platform or manlift where one can gain access to the BBC at the service position. Minimum capacity of 300 lb, there should be no shaking or sagging during all the work.
- 4.2** A crane with slings or a lifting cage (min. capacity 50-lb.) to move the BBC canisters to the platform (optional).

5.0 Procedures

5.1 Installation

(Note: procedure is identical for North and South BBC detectors)

- 5.1.1** The BBC top and bottom canisters, including detectors fully mounted inside the frames and optical fiber cords wired on the front panel, shall be delivered to building 1008. Each canister

weighs 15 lb, and its center of gravity is located at approximately 100mm from the front panel.

- 5.1.2 Move both the top and bottom canisters up to the platform/manlift with a crane and slings or a cage or carefully by hand. Be careful not to damage the detector itself and the optical fiber cords.
- 5.1.3 Make sure that the isolation vacuum valves along the beam pipe are closed.
- 5.1.4 Fully extract the mounting rails from the flowerpot.
- 5.1.5 Position the bottom canister by hand exactly under the service position (1st lock position. The front panel with fiber cords faces into the "Flower Pot". Be careful not to hit the beam pipe or cause any damage to the fiber cords.
- 5.1.6 Slide lower BBC onto rails and lock into 1st position. Check orientation and alignment with rails.
- 5.1.7 Release locks and slide the lower BBC into "Flower Pot" making sure it goes all the way in. After checking that it is unobstructed in its path all of the way in, retract the lower BBC to its 1st locking position.
- 5.1.8 Using 2 aluminum blocks with lifting eyes. Lift the upper BBC and carefully mount it on the lower BBC, remove lifting blocks and fasten to the lower BBC with 4 4-40 flat head screws.
- 5.1.9 Release the rail locks and slide the entire BBC all the way into the flower pot carefully checking for obstructions.
- 5.1.10 After verifying that no obstructions are present, retract the BBC assembly to 1st locking position and install all airlines.
- 5.1.11 Install all cables and fibers, taking care to verify correct numbering. Use extra care while installing to avoid contact with beam pipe and station 1 electronics. Make sure cables are free from beampipe and station 1. Assure that the BBC assembly will slide freely into the "Flower Pot" without straining or snagging cables, fibers or air lines. Recheck all connections and numbering before proceeding.
- 5.1.12 Release the locks and slide the full BBC into its run position.

(See Fig.2)

5.1.13 Install the 2 air supply lines to the BBC manifolds .

5.1.14 Inform the BBC group that they may now verify all signals.

5.2 Removal/De-Installation

(Note: procedure is identical for North and South BBC detectors)

5.2.1 Verify that all power from BBC rack is off and that cooling air supply is shut off before commencing the procedure.

5.2.2 Disconnect the 2 copper air supply lines from the upper and lower manifolds.

5.2.3 Carefully retract the entire BBC assembly from the “Flowe Pot” to the 1st locking position.

5.2.4 Carefully remove cables and fibers from the BBC, keeping the cables in their tie-wrap bundles.

5.2.5 Remove the 4 small air lines from the lower BBC half.

5.2.6 After checking that all cables, fibers and air lines have been removed, fasten the 2 aluminum lifting blocks with lifting eyes to the BBC upper half.

5.2.7 Remove the 4 4-40 screws which attach the upper BBC to the lower half.

5.2.8 Lift the upper BBC and place it carefully in the manlift.

5.2.9 Unlock the lower BBC tabs, slide the lower BBC half off of the rails and place it in the manlift.

5.2.10 Handling the 2 halves with care deliver them to a safe location for storage or maintenance .

6.0 References

Refer to BNL SBMS for all relevant BNL standards.

7.0 Attachments

7.1 Illustrations

Figure 1 BBC rails in position 1

Figure 2 BBC move to run position

Figure 3 Photo of BBC with air and electrical cabling disconnected

Figure 2 BBC move to run position

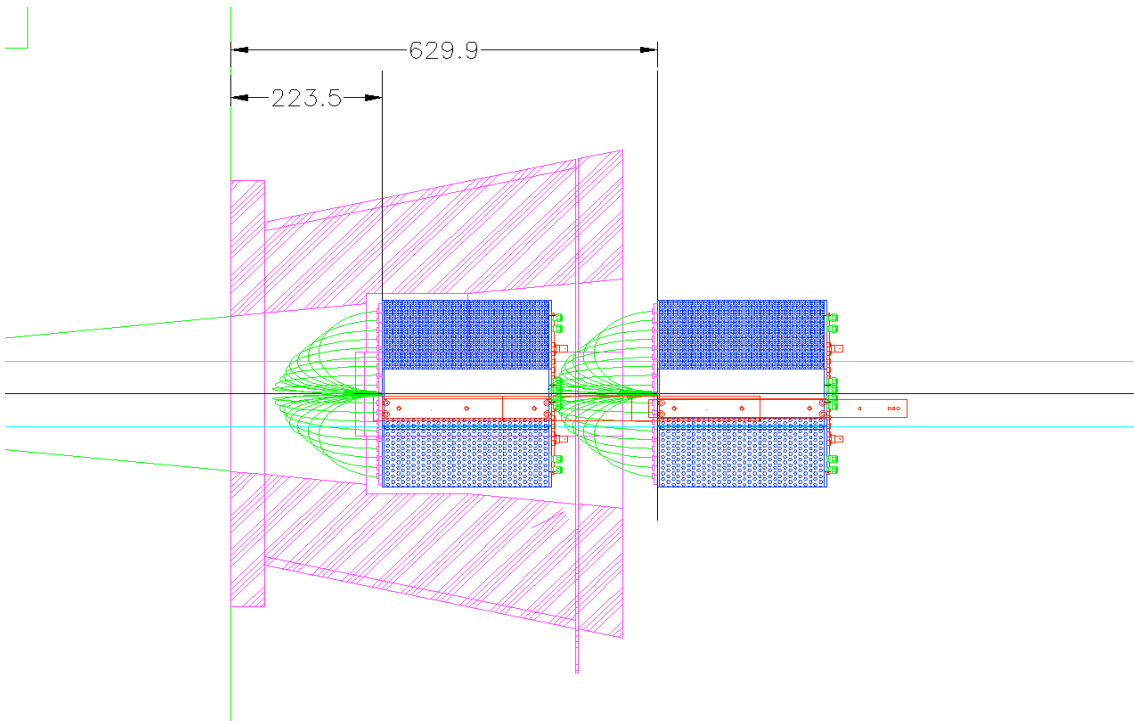


Figure 3 Photo of BBC with air and electrical cabling disconnected

